



Victorian Certificate of Education
2006

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STUDENT NUMBER		Letter			
Figures					
Words					

PSYCHOLOGY

Written examination 2

Thursday 2 November 2006

Reading time: 9.00 am to 9.15 am (15 minutes)

Writing time: 9.15 am to 10.45 am (1 hour 30 minutes)

QUESTION AND ANSWER BOOK

Structure of book

Section	Number of questions	Number of questions to be answered	Number of marks
A	44	44	44
B	16	16	45
			Total 90

- Students are permitted to bring into the examination room: pens, pencils, highlighters, erasers, sharpeners and rulers.
- Students are NOT permitted to bring into the examination room: blank sheets of paper and/or white out liquid/tape.
No calculator is allowed in this examination.

Materials supplied

- Question and answer book of 19 pages.
- Answer sheet for multiple-choice questions.

Instructions

- Write your student number in the space provided above on this page.
- Check that your name and student number as printed on your answer sheet for multiple-choice questions are correct, and sign your name in the space provided to verify this.
- All written responses must be in English.

At the end of the examination

- Place the answer sheet for multiple-choice questions inside the front cover of this book.

Students are NOT permitted to bring mobile phones and/or any other unauthorised electronic devices into the examination room.

AREA OF STUDY 2 – LEARNING

Question 23

Which one of the following behaviours is a learned behaviour?

- A. a baby crawling
- B. a spider spinning a web
- C. a person's fear of spiders
- D. pulling your hand away after touching a hot object

Question 24

Fixed action patterns

- are usually simple responses to direct stimulation.
- occur less frequently in mammals than in birds and fish.
- involve both classical and operant conditioning.
- are not genetically programmed.

Question 25

In Pavlov's original experiments, a conditioned response that had been extinguished was seen again when the _____ was delivered again. This reappearance of the conditioned response is known as _____.

- A. unconditioned stimulus; spontaneous recovery
- B. conditioned stimulus; reverse extinction
- C. conditioned stimulus; spontaneous recovery
- D. unconditioned stimulus; reverse extinction

Question 26

One-trial learning, particularly in the context of taste aversion, is often argued to differ from classical conditioning because

- A. in classical conditioning the conditioned response often takes a long time to appear, whereas in one-trial taste aversion, the conditioned response always occurs immediately.
- B. stimulus generalisation is less likely to occur with one-trial taste learned responses than classically conditioned responses.
- C. one-trial learned responses are acquired more slowly than classically conditioned learned responses.
- D. one-trial learned responses are generally extinguished more quickly than classically conditioned responses.

Question 27

Question 27
Influential research on one-trial conditioned taste aversion in a variety of animal species was pioneered by John Garcia.

John Garcia. This research supports the notion that one-trial conditioned taste aversion

- A. demonstrates the powerful effect of punishment on animal behaviour.
- B. is the same as classical conditioning.
- C. has an adaptive survival value for animals.
- D. shares many features with negative reinforcement.

Question 28

Thorndike's law of effect

- A. is based on the process of instrumental learning.
- B. directly led to Pavlov's research on classical conditioning.
- C. explains only the strengthening of behaviours.
- D. explains only the effect of 'annoying' consequences of behaviour.

Question 29

The word 'operant' in Skinner's operant conditioning refers to

- A. the environment in which an organism is conditioned.
- B. the process by which an organism learns to discriminate between different types of reinforcers.
- C. an organism's response or behaviour that acts on the environment and leads to some sort of outcome.
- D. the positive or negative outcome of an organism's behaviour.

Question 30

In Skinner's original experiments, the behaviour of an animal when first placed in an operant chamber was

- A. instrumental.
- B. random.
- C. reinforced.
- D. punished.

Question 31

Jamie has a part-time job in a local takeaway food store. She is paid every second Thursday. This is an example of a _____ schedule of reinforcement.

- A. fixed ratio
- B. fixed interval
- C. variable ratio
- D. variable interval

Question 32

Which schedule of reinforcement results in the slowest acquisition of behaviour?

- A. fixed ratio
- B. fixed interval
- C. variable ratio
- D. variable interval

Question 33

When Liam misbehaves, his parents take his television away for a period of time.

This is an example of

- A. punishment.
- B. negative reinforcement.
- C. positive reinforcement.
- D. modelling.

Question 34

On a recent visit to the doctor, Jasmine was given a painful injection. Since then, Jasmine not only refuses to go to the same doctor, but also will not go to see any doctor or dentist.

Jasmine's refusal behaviour is an example of

- A. stimulus generalisation.
- B. stimulus discrimination.
- C. punishment.
- D. extinction.

Question 35

In trying to defend the ethics of Watson's 'Little Albert' experiment, it is argued that the knowledge gained about the development of phobias from this experiment clearly outweighed the negative impact on Little Albert.

This argument is based on the ethical principle of

- A. respect.
- B. beneficence.
- C. integrity.
- D. justice.

Question 36

Classical conditioning differs from operant conditioning in that

- A. the learner plays a more active role in acquiring the new behaviour in classical conditioning.
- B. reinforcement is more likely to occur in classical conditioning.
- C. the response almost always occurs prior to the stimulus in classical conditioning.
- D. the response in classical conditioning is reflexive.

Question 37

Which one of the following elements is associated with learning by operant conditioning, but not by classical conditioning?

- A. extinction
- B. punishment
- C. stimulus discrimination
- D. acquisition

Question 38

Behaviours learned through classical conditioning, when compared with behaviours learned through operant conditioning, are more likely to be

- A. deliberate.
- B. goal directed.
- C. unintentional.
- D. conscious.

Question 39

Bandura's Bo-Bo doll experiments found

- A. rewarding children for imitating the adult model's behaviour had little effect on the children's behaviour.
- B. that what happened to the adult model had little impact on children's behaviour.
- C. that children were less likely to imitate the adult model if they had observed the adult model being punished.
- D. no difference between boys and girls in terms of their behaviour after watching the adult models.

Question 40

In interpreting the results of his Bo-Bo doll experiments, Bandura argued that

- A. there is no distinction between learning a behaviour and performing that learned behaviour.
- B. observational learning is a special type of operant conditioning.
- C. observational learning does not take place totally independently from operant conditioning.
- D. operant conditioning and observational learning cannot operate together.

Question 41

Which one of the following processes involved in observational learning generally occurs first?

- A. reproduction
- B. attention
- C. retention
- D. motivation

Question 42

Simon is a skilled soccer player who specialises in taking free kicks. In trying to improve this skill, he closely watches tapes of the famous soccer player David Beckham taking free kicks. Simon remembers David Beckham's actions very clearly, and copies him closely when taking his free kicks for goals. Unfortunately for Simon, the number of goals he scores after watching David Beckham decreases.

Based on this outcome, which observational learning process would play the strongest role in influencing Simon's likelihood of **continuing** to take his free kicks for goal in this way?

- A. reproduction
- B. attention
- C. retention
- D. motivation

Question 43

Some famous experiments on **learning set** in monkeys, for example those carried out by Harlow, found that

- A. once the monkeys had learned to locate food at a particular location, they persisted in searching for the food at that location, long after the behaviour should have been extinguished.
- B. monkeys were able to learn a rule that helped them solve future problems.
- C. learning set in monkeys is a special type of stimulus generalisation.
- D. monkeys, unlike humans, were unable to demonstrate insightful behaviour.

Question 44

Nancy has played carpet bowls for the last ten years. She decides to play lawn bowls for the first time and experiences a positive transfer of learning.

This means that the

- A. skills needed for carpet bowls hindered her ability to learn the skills for lawn bowls.
- B. skills needed for carpet bowls helped her ability to learn the skills for lawn bowls.
- C. rules of carpet bowls are different from the rules of lawn bowls.
- D. rules of carpet bowls are practically the same as the rules of lawn bowls.

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AREA OF STUDY 2 – LEARNING

Question 5

Elise is walking along a busy street listening to her favourite song on her MP3 player. She accidentally steps on to the road and is narrowly missed by a bus driving past. Elise is very upset, and for several days afterwards her hands shake, and she finds herself bursting into tears. A week later, after these symptoms have subsided, Elise is listening to the radio while lying in bed. She hears her favourite song again and her hands start shaking and she starts crying.

- a. What sort of conditioning has occurred to cause Elise to cry when she hears the song a week after the near accident?

_____ 1 mark

- b. In this scenario, what is the

i. conditioned stimulus? _____

ii. conditioned response? _____

iii. unconditioned stimulus? _____

iv. unconditioned response? _____

1 + 1 + 1 + 1 = 4 marks

A month later, another band releases a new version of Elise's favourite song. When Elise hears this version of her favourite song, she bursts into tears and her hands start shaking.

- c. This is an example of _____

_____ 1 mark

After a year, Elise can listen to any version of her favourite song without any reaction. She does not burst into tears and her hands do not shake.

- d. These reactions are now no longer present because of the process of _____

_____ 1 mark

Question 6

Define and give an example of negative reinforcement.

Definition _____

Example _____

_____ 2 marks

Question 7

With reference to Thorndike's puzzle box experiments, explain the relationship between trial and error learning and instrumental learning.

_____ 2 marks

Question 8

Jackie and John have a two-year-old son. One morning the two year old misbehaves and Jackie tells him to 'wait until your father gets home'. Later that evening, when John arrives home from work, he takes his son aside and smacks him for his poor behaviour earlier that day.

- a. With reference to operant conditioning, give two reasons why Jackie and John's punishment of their son is most likely to be ineffective.

1. _____

2. _____

_____ 2 marks

- b. Give an example, using positive reinforcement, that Jackie and John could use to deal with their son's behaviour.

_____ 1 mark

AREA OF STUDY 3 – RESEARCH INVESTIGATION

Read the following research study. All the questions which follow relate to this study.

Answer all the questions.

Testing the Mozart effect

Previous research has shown that listening to certain types of classical music (for example, a Mozart concerto) may increase performance on spatial-temporal tasks for a short period of time. However, this research has been disputed.

Professor Williams aims to investigate the effect of classical music on a spatial-temporal task that involves paper folding and cutting. He plans to find out if the effect exists for VCE students at Lake Hilltop Secondary College, a coeducational country school.

Professor Williams recruits participants who are studying VCE at the school. He asks the first 40 students that visit the library to participate. All 40 students provide signed informed consent.

The participants sit quietly for 20 minutes and then attempt the first paper folding and cutting test (Condition 1).

The same participants then listen to classical music for the next 20 minutes. Immediately afterwards they complete a similar paper folding and cutting test (Condition 2).

Professor Williams asks a teacher, who does not know which test relates to which condition, to mark the tests.

The results are as follows.

Condition 1 (control): Mean test score = 8

Condition 2 (listening to classical music): Mean test score = 12

A statistical test on these results found that $p < 0.05$

Question 9

For this study, what is the

- i. independent variable?

- ii. dependent variable?

1 + 1 = 2 marks

Question 10

Construct an operational research hypothesis for this study.

2 marks

Question 11

- a. Was random sampling used in this study? Explain your answer.

1 mark

- b. Why is random sampling often a preferred sampling technique?

1 mark

Question 12

- a. Name the experimental design used in this study.

_____ 1 mark

There is a basic flaw in the method of this study.

- b. Name this flaw, and clearly explain how it could have affected the results.

Name _____

Explanation _____

2 marks

- c. Name and describe one method of overcoming this design flaw.

Name _____

Description _____

2 marks

Question 13

Outline the withdrawal rights that the participants are entitled to both during and after the study.

2 marks

Question 14

Are the results statistically significant?

_____ 1 mark

Question 15

What conclusion can be made about the population from which the sample is drawn? Explain.

2 marks

Question 16

Professor Williams writes a formal research report. List two main points of information he should include in the discussion section of his report on this study.

1. _____

2. _____

2 marks

2006 Psychology GA 3: Written examination 2

GENERAL COMMENTS

Students' performance on the 2006 examination 2 paper was slightly superior to previous years, especially in the Short answer section. Some improvement was shown in this section, especially in terms of addressing the instructional terms in the questions. However, as in the Unit 3 examination, it appeared that students continued to have some difficulty interpreting questions and often lost marks due to a lack of precision in their responses. In each of the two Areas of Study, the mean score on the Multiple-choice section was superior to the mean score on the equivalent Short answer section.

As in 2005, but in contrast to previous years, the 'Learning' section yielded the highest average score in the Short answer section (63 per cent), with 'Memory' (56 per cent) next and 'Research Methods' (46 per cent) being the most problematic. In the Multiple-choice section, the average scores for 'Memory' and 'Learning' were very similar (71 per cent and 70 per cent respectively).

Students are encouraged to attempt all questions in the Multiple-choice section rather than leaving any lines blank. Not only is it impossible to achieve a mark if no response is given, it also increases the likelihood that later answers on the computer-scored sheet will be out of synchronisation, and marks cannot be awarded where answers are shaded on incorrect lines. Marks are not lost for incorrect responses, therefore if they are unsure of an answer, students are advised to mark the response that is their 'best guess' – it is always possible to change a response later.

Marking Policy – Section B, short answer questions

In general, two-mark questions require two pieces of information; one mark is available for each part and answers that fail to address both parts cannot achieve full marks. In this examination this applied, for example, to Questions 1b., 6 and 12b.

Where a question requires definition of a term, use of the term (or its derivatives) as part of its own definition precludes the award of full marks for that response. Such responses clearly do not show full understanding of the term. In this examination, this related to Question 6 in Area of Study 2.

This examination contained several questions in which students were required to answer with respect to a certain theory or context; for example, 'With reference to consolidation theory' (Question 2, Area of Study 1) and 'In terms of both decay theory and motivated forgetting theory' (Question 4a., Area of Study 1). Students must be careful to follow the instructions in such cases.

In Area of Study 3, each question must be answered with reference to the research study described, as stated in the instructions on the examination paper. Generic answers do not show a clear understanding and cannot gain full marks.

SPECIFIC INFORMATION

Section A – Multiple-choice questions

Question	% A	% B	% C	% D	Comments
Area of Study 1 – Memory					
1	3	3	94	1	There is some confusion about the sensitivity of the different measures of memory, and there are slight differences depending on which register or division is being considered. Consistently in VCE examinations, the most sensitive measure of memory is accepted to be re-learning.
2	5	1	3	91	
3	11	11	77	2	If a person is aware of a memory, then that memory cannot be in sensory memory because attention has been paid to it.
4	2	7	86	5	
5	8	13	57	22	
6	78	3	3	15	
7	8	3	8	80	
8	19	77	1	4	
9	10	2	6	82	

Question	% A	% B	% C	% D	Comments
10	8	10	77	5	Students who chose option C, 'meaningful' showed a lack of understanding of levels of encoding. 'Structural encoding' (according to the physical characteristics of the item to be stored) and 'phonemic encoding' (according to the sound of the item to be stored) do not involve meaning, which is required for 'semantic encoding'.
11	2	68	28	2	
12	6	55	34	5	Elaborative rehearsal involves adding meaning and linking the items to be remembered to items already in memory. Only option C, 'rehearsing the names in alphabetical order' complies with the explanation. Option C, 'looking at each face and saying the name over and over' is simply another form of maintenance rehearsal.
13	10	10	5	75	Anterograde amnesia refers to a condition in which new memories cannot be effectively consolidated after a trauma; usually people can recall information for several minutes but the formation of the memory traces is never completed. In extremely rare cases only short-term memory will remain. This means that the relatively popular options B and C were clearly incorrect.
14	91	2	1	7	
15	6	4	83	6	The study design refers only to the effects on memory of ageing in a healthy individual.
16	39	7	3	1	
17	62	18	16	4	It is likely that the use of the term 'locations' in option C caused a significant number of students to choose this incorrect answer.
18	14	13	64	9	The elimination of obviously incorrect alternatives yielded the correct answer: • fixed action patterns are not simple responses (option A) • fixed action patterns are not learned or conditioned (option C) • fixed action patterns are genetically programmed (option D).
19	11	84	3	2	
20	1	62	57	0	One of the characteristic features of taste aversion is that the response occurs hours after the conditioned stimulus (tainted food) is presented. This eliminates option A. Option D is incorrect as one-trial conditioned taste aversion has no resemblance whatsoever to negative reinforcement.
21	8	3	2	86	
22	1	4	20	75	The study design stipulates that Skinner's original research should be studied in the context of operant conditioning.
Area of Study 2 – Learning					
23	9	1	84	6	This question may be taken as an indicator of the degree of detail in which schedules of reinforcement should be studied.
24	40	41	10	8	
25	18	4	76	2	
26	49	36	6	8	
27	14	14	50	22	
28	73	7	18	2	
29	9	16	59	17	
30	10	66	17	7	
31	22	75	2	2	
32	7	10	29	53	
33	78	20	2	0	
34	91	8	0	1	

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Question	% A	% B	% C	% D	Comments
35	3	76	12	10	
36	12	6	13	67	
37	3	78	7	12	
38	9	7	75	8	
39	2	4	88	6	
40	16	25	53	5	It may assist students to remember that Bandura referred to modelling as 'Social Learning Theory'.
41	4	90	2	4	
42	20	2	8	70	
43	30	62	6	2	
44	2	95	1	2	

Section B – Short answer questions

Area of Study 1 – Memory

Question 1a.

Marks	0	1	Average
%	19	81	0.8

Short-term memory or working memory

This question was well answered.

Question 1b.

Marks	0	1	2	Average
%	27	16	57	1.3

Examples of acceptable techniques included:

- narrative chaining
- method of loci
- peg word method
- acronym
- acrostic
- rhyming.

Examples as acceptable explanations included:

- narrative chaining: Karlee takes the name and address of the music store (Marley's Music, 49 Butler Avenue, Melbourne) and creates a story out of the words; for example, 'Bob Marley makes great music, although he is on his 49th Melbourne butler'
- method of loci: Karlee pictures (visualises) the store name and address (Mickey's Music, Swan Street) as Mickey Mouse and a swan located at specific positions on a well-known journey or in a well-known location, so that she can re-visit these places in her imagination and allow the locations to cue the images.

Any mnemonic technique was acceptable, provided the explanation matched and the explanation worked with the example given in the stem.

Many students used such mnemonics as 'acronyms' or 'acrostics' as their examples. These were acceptable, providing an appropriate example was given, but students and teachers should note that the study design only nominates 'narrative', chaining' and 'method of loci'. Students must have knowledge of the techniques listed in the study design, as future examination questions may restrict answers to these techniques.

Question 2

Marks	0	1	2	3	Average
%	36	25	24	14	1.2

Students' answers should have referred to the following information.

- The transfer of information from short-term memory to long-term memory requires a period of time for stabilisation (consolidation) to occur for it to be properly stored.

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- Neural (organic/biological/chemical, etc.) changes in the brain that occur when something new is being learned occur for a period of time after learning.
- Either of the following conclusions was acceptable.
- The exciting football match should not have caused disruption to the consolidation process, as the two types of information are sufficiently different not to interfere with one another, and Connor's ability to remember the information the following morning would not be affected.
 - There could be some disruption in consolidation because the new experience influences mental function and processes.

This question was poorly answered. The main difficulty was a failure to respond in terms of consolidation theory, as required by the question.

Question 3

Marks	0	1	2	Average
%	37	6	57	1.2

- phonological loop/articulatory rehearsal loop/rehearsal loop
- visuospatial sketchpad

Although some texts indicate a dual role for the articulatory loop, it is emphasised that it is the storage component, as shown in this response, that was required by the wording of the question.

Question 4a.

Marks	0	1	2	3	4	Average
%	9	14	36	13	28	2.4

Decay theory

- The physical (chemical/biological/organic) trace of the event (or 'memory trace') was formed in Olga's brain when Olga experienced the incident.
- The physical or chemical trace has faded due to it not being regularly re-visited during her lifetime.

Motivated forgetting theory

- This could occur if the incident at Olga's 21st birthday was traumatic or extremely upsetting.
- Olga may have continually kept the memory from conscious awareness.

Students who did not clearly relate the forgetting to the theory required were not able to gain full marks for this question.

Question 4b.

Marks	0	1	2	Average
%	26	45	29	1.1

The semantic network theory states that information in long-term memory is stored in overlapping networks of interconnected concepts. The activation of one node or piece of information activates other, related nodes. Olga could think about other things related to her 21st birthday party, such as who was present or what she was wearing (which would be stored in the same 'region' as the memory of the event), and trace associated concepts for links to the memory of the incident. Or, Olga could use context or state-dependent cues to attempt to enable her to access the specific items in her semantic network.

Again, the problem for many students was failing to refer to semantic network theory and its role in this recall.

Area of Study 2 – Learning

Question 5a.

Marks	0	1	Average
%	30	70	0.7

Classical conditioning

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The most common error was to identify this as 'one-trial learning'. In the *Psychology VCE Study Design*, the relevant dot point on page 27 states 'one-trial learning with reference to taste aversion'.

Question 5b.

Marks	0	1	2	3	4	Average
%	3	8	23	26	41	3.0

5bi. Elise's favourite song

5bii. Elise crying and shaking/being upset at the sound of the song

5biii. Near-accident with the bus/bus just missing Elise

5biiv. Elise crying and shaking/being upset because of the near-miss

The additional information highlighted in bold was essential for an entirely correct answer.

Question 5c.

Marks	0	1	Average
%	25	75	0.8

Stimulus generalisation

Question 5d.

Marks	0	1	Average
%	16	84	0.9

Extinction

Question 6

Marks	0	1	2	Average
%	42	24	34	0.9

Negative reinforcement occurs with the removal of an unpleasant (aversive/nasty) stimulus. This produces an increase in the strength, likelihood or frequency of a response. For example, removal of a headache (unpleasant stimulus) by taking Panadol increases the likelihood that Panadol will be taken the next time you have a headache.

The most common error was to confuse 'negative reinforcement' with 'punishment'. Students must be careful to ensure that the example they give clearly illustrates the required process, as many descriptions were vague or superficial.

Question 7

Marks	0	1	2	Average
%	53	32	15	0.6

Initially, Thorndike's cat tried to escape the puzzle box using 'trial and error' (random voluntary movements) trying many techniques until it accidentally pulled the string and the door opened so that it could reach its reinforcement (food). After several trials, the cat learned to pull the string to escape the box and reach the food. Thorndike concluded that the cat had learned the association between its behaviour (pulling the string) and the consequences (reaching the food). This is instrumental learning.

This question was very poorly answered, mainly because students did not follow the instructions in the question and relate their answer to Thorndike's puzzle box experiment.

Question 8a.

Marks	0	1	2	Average
%	7	57	36	1.3

Appropriate reasons included:

- for punishment to be effective, it should be presented immediately following the undesirable behaviour – it was several hours before John inflicted his punishment
- for punishment to be effective, it must be clearly linked with the undesirable behaviour in the mind of the learner (child)
- the punishment (smack) may not be appropriate or seen as a punishment by the toddler; that is, it may give him attention that he craves from his father
- physical punishment such as a smack may cause the toddler to feel aggressive or resentful towards his father
- punishment does not give alternative ways of behaving, so the misbehaviour is likely to be replaced by another unwanted behaviour.

Question 8b.

Marks	0	1	Average
%	18	82	0.8

Jackie and John could give their son tokens or rewards for positive behaviour, such as giving him a cuddle when he behaves, telling him he is a good boy, etc.

This question was well answered.

Area of Study 3 – Research Investigation

Question 9

Marks	0	1	2	Average
%	35	30	34	1.0

9i. Whether students listen to classical music before completing the paper task or not.

Although 'listening to classical music' was acceptable, 'listening to classical music while performing the paper folding and cutting task' was not correct.

9ii. The score obtained on the paper folding and cutting test or the performance on spatio-temporal tasks.

Question 10

Marks	0	1	2	Average
%	48	34	18	0.7

That VCE students from Hilltop Secondary College who listen to classical music for twenty minutes before performing spatial-temporal tasks will perform better on these tasks – operationalised as a score on a paper folding and cutting test (that is, they will score higher on this test than when they do not listen to classical music prior to performing spatial-temporal tasks).

Essential components of an operational hypothesis are:

- statement of population
- statement of independent variable
- operationalisation of the independent variable if it is other than a forced dichotomy
- statement of dependent variable
- operationalisation of dependent variable.

This question was poorly answered. Students needed to demonstrate their understanding of operationalisation and that a hypothesis is a statement of the predicted effect of a change in the independent variable on the value of the dependent variable.

Question 11 a.

Marks	0	1	Average
%	56	44	0.5

Random sampling was not used in this study. Random sampling would allow every member of the population the same chance of being involved in the study. This did not occur as Professor Williams used the first 40 students who walked into the library.

This was a surprisingly low score for such a straightforward question, demonstrating that the concept of random sampling was not well understood.

Question 11b.

Marks	0	1	Average
%	62	38	0.4

Random sampling is often preferred as it is more likely that a sample gained this way will be representative of the population of interest and/or participant variables will be distributed in the sample in the same proportions as in the population (so their effects on the dependent variable will be eliminated).

Merely stating that it is preferred because every member of the population has the same chance of being selected, as many students did, was not awarded a mark as this did not provide an explanation of why random sampling is preferred. Sampling (as a means of eliminating participant variables as potential confounds) was obviously not well understood.

Question 12a.

Marks	0	1	Average
%	41	59	0.6

Either of:

- repeated measures design
- within participants design
- within subjects design.

Question 12b.

Marks	0	1	2	Average
%	41	29	30	0.9

Either of:

- order effect(s)/practice effect: the sequence in which the conditions were performed may become an extraneous variable as performance on the task completed second may be better because of the experience gained in completing the first task, and not because of the classical music
- boredom effect: participants may be fatigued or bored when they come to complete the second task and not perform as well.

The phrasing of the question required that a basic flaw in the research design should be identified. Flawed methodology in terms of sampling procedures or placebo effect did not address this point.

Question 12c.

Marks	0	1	2	Average
%	51	17	32	0.8

Counterbalancing the order in which the conditions of a repeated measures experiment are completed are arranged so that each condition occurs equally often in each position.

Of students who obtained any marks for this question, two thirds gained full marks. This suggests that when counterbalancing had been learned it was a concept that was well-understood. The 50 per cent of students who obtained no marks tended to either make no response or made an error in identifying the design flaw in part b.

Question 13.

Marks	0	1	2	Average
%	7	46	46	1.4

- Participants are entitled to leave the study at any time during the conduct of the study.
- Participants may withdraw their results from the study at any time following the completion of the study.

Some students confused 'withdrawal rights' with 'voluntary participation'.